

## Abstract of the disclosure

This invention presents an ESC mechanism for chucking an object electro-statically on a chucking surface, comprising a stage having a dielectric block of which surface is the chucking surface, and a chucking electrode provided in the dielectric block. A temperature controller is provided with the stage for controlling temperature of the object. A chucking power source to apply voltage to the chucking electrode is provided so that the object is chucked. The chucking surface has concaves of which openings are shut by the chucked object. A heat-exchange gas introduction system that introduces heat-exchange gas into the concaves is provided. The concaves include a heat-exchange concave for promoting heat-exchange between the stage and the object under increased pressure, and a gas-diffusion concave for making the introduced gas diffuse to the heat-exchange concave. The gas-diffusion concave is deeper than the heat-exchange concave. This invention also presents a surface processing apparatus, comprising a process chamber in which a surface of an object is processed, and the electro-static chucking mechanism of the same composition.